TrashMasters!™
SUPER Recyclers

High School Division
Bronx Borough
Notable Student Effort

Cardinal Spellman High School

2014 GOLDEN APPLE AWARDS

This certificate is awarded with the sincere appreciation and esteem of a grateful Department and City in recognition of your school's efforts to help make New York City shine.

City of New York
Department of Sanitation
Bureau of Waste Prevention, Reuse and Recycling
nyc.gov/recycle

NYC Recycles

GAA-SRcert 06/14

2014 Golden Apple Awards
Contest Entry Judging Info

(This sheet prepared for judges' use by DSNY BWPRR)

ID Info: 14013

School: Cardinal Spellman High School
Grade Division HS
Borough: X

☐ **Golden Shovel Award contestant**
(for borough Master School Composter)

2014 Project Entries received for:

School Population: total # 1410

	Core Group:	Total Participating:
☑ **TrashMasters! Super Recyclers**	200	1410

United We Recycle! Received: 4/30/2014

This year, Cardinal Spellman High School students decided to undertake a massive recycling project that involved the entire school community. The 4G Club (Go Green Gardening Group) collected and weighed classroom paper recycling, and then entered the data into a spreadsheet to visualize their impact on the environment. The data is displayed on a banner at the entrance of the school, surrounded by cardboard cutouts of the number of trees they saved by recycling paper. They also constructed a greenhouse from plastic bottles, and a solar panel from aluminum cans! Teachers developed interdisciplinary projects in science, art, and math to involve students in designing and constructing their own recycled objects. Cardinal Spellman High School's conscience efforts have helped students not only recycle, but also reduce their non-sustainable trash, with the

☐ **TrashMasters! Reduce & Reuse Challenge**

Received:

☐ **TrashMasters! Team Up to Clean Up**

Received:

Prior Year Entries:
12:TU-hon;13:TU-C,GS-X

Current Prizes
14:SR-note

School Contact Information:

Phone: 718-881-8000 x201
Address: 1 Cardinal Spellman Pl
Bronx 10466

Block&Lot: 2049050265
DOE Location: RCA
DOE Bldg: RCA

REQUIRED for Super Recyclers only:

Custodian: Frank Ortiz

Contest Coordinator: Rita Pilerio, Biology

Principal: Daniel O'Keefe

Sustainability Coord:

Info Confirmed:

Printed: 6/18/2014

CARDINAL SPELLMAN HIGH SCHOOL

ONE CARDINAL SPELLMAN PLACE, BRONX, N.Y. 10466-5897 • (718) 881-8000 FAX: (718) 515-6615

SCHOOL INFO

- **School Number:** 321100145436
- **Official School Name:** Cardinal Spellman High School
- **Address:**
  1 Cardinal Spellman Place
  Bronx, NY 10466
  Phone: 718-881-8000, Fax: 718-515-6615
- **Principal:**
  Daniel O'Keefe
  dokeefe@cardinalspellman.org
  718-881-8000 ext. 201
- **Contest coordinator:**
  Rita Piliero, Science teacher
  rpiliero@cardinalspellman.org
  718-881-8000 ext. 269
- **School description:**
  Cardinal Spellman High School has approximately 1,400 students with diverse cultural and academic backgrounds. Our mission is to promote a culture of aspiration that encourages superior academic performance, leadership, and service. We strive to make our program available to all qualified students. We emphasize personal development and we foster a commitment to others that empowers our diverse student population to become leaders who make a difference in our community, nation, and world.

- **CONTEST ENTRY INFO:**
  - **Borough: Bronx**
  - **Grade Division: High School**
  - **Contest Entry Title: United We Recycle!**
  - **Contest Entry Summary:**

    This year, Cardinal Spellman High School students decided to undertake a massive recycling project that involved the entire school community. A range of items recycled included paper, aluminum, plastic, and food waste. We not only recycled, but we also created a greenhouse, a solar panel, and various products from used materials (glass, bottle, plastic, aluminum, paper). Various disciplines connected on this project and created academic lessons to reinforce and enrich our concepts and foster community spirit. We have made a conscious effort to reduce our non-sustainable trash, thereby reducing air, soil, and water pollution. We are confident that we have made a positive impact on the environment with practices that can be mirrored in homes and communities.

- **STUDENT INVOLVEMENT**
  - Student Participation: Core Group #: 200
  - Student Participation: Total #: 1,410
  - School Population: Total #: 1,410

RECYCLING AT OUR SCHOOL

Long Live Paper!

To begin our paper recycling, each classroom was given a reused cardboard box with a recycling sticker pertaining to paper. All staff were notified via email regarding this school-wide paper recycling project. Offices were given large plastic receptacles for paper disposal. On a weekly basis, paper is collected from every classroom and weighed and bagged in clear plastic. Students from various classes as well as the 4G Club (Go Green Gardening Group) volunteer to collect paper throughout the school. The amount of paper collected is then submitted to a Google Drive spreadsheet to provide access to teachers who enter the data. In this way, the data is constantly updated. Weekly collection enables the paper to be ready for disposal in blue bins that the NYC Department of Sanitation collects every Friday. To date, we have collected more than 5,200 pounds of paper, and we are still counting. Calculating the amount of paper collected gives us an idea of how much impact we can have on the environment. For example, a pine tree yields about 805 pounds of paper (http://science.howstuffworks.com/environmental/green-science/question16.htm), which means we have saved 6.5 trees. This data is displayed on a banner at the entrance of our school, testifying to our recycling program. For every tree saved, we have created an artistic display of the trees created from recycled cardboard to show the progress we have made.

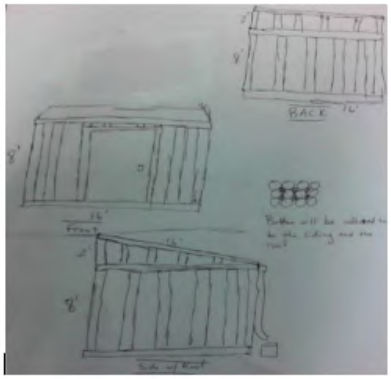
A simple yet effective learning tool for students provides the basis for this year-long, school-wide project. Not only students who actively participate in the collection of paper, but also students throughout the school are aware of the recycling program. All students are able to see the paper receptacles in every classroom. Students learn the environmental benefits of recycling and are able to come up with creative ways of reusing paper. Laboratory activities were tailored to coincide with recycling, so much so that a lesson was created that taught students actual recycling techniques. The collection and analysis of data also serve to be interdisciplinary. Students learn how to enter and analyze data as well as interpret and predict trends. Students were also asked to create products from the recycled material. These products will be shared among the students, and these ideas can be implemented for all. The summer enrichment program will continue with the recycling project during the summer session.

Paper collection

Mr. O'Donnell and Mr. Holleran

Greenhouse from Recycled Plastic

To continue with the spirit of reuse and recycling that the science department has been cultivating, Mr. O'Donnell's Earth Science classes have been constructing a greenhouse made from recyclable plastic bottles collected at school, which will house the plants that they will grow. The following describes the procedure of the greenhouse construction:



Schematic of greenhouse

Foundation: We selected a piece of land outside of the Earth Science room. There is enough room for one 16' by 16' greenhouse. After the ground leveling, cinder blocks, which were used by the athletic department but are now refuse, will be used to level out the foundation that will be made of 2x4's and 19/32" plywood.

Walls: The walls of the structures will be constructed with pieces of 2x4 that run a length of 8.' A total of 18 of them will be spaced out on both sidewalls with a gap of 16" between them. On the back wall, 8 of them will be spaced out at 16" as well. On the front wall, a door and doorjamb will be installed so that any student who is working in the greenhouse will have easy accessibility. For the siding of the walls, recyclable plastic bottles were adhered together so that they are able to generate and maintain heat from the sun. The panels will be glued together using silicone and then affixed to the studs of the greenhouse walls.

Students create a panel siding

Roof: The roof will consist of a frame that runs 2' higher than the wall on the front of the greenhouse so that there is a pitch to it. A gutter will be placed onto the front so that we can collect and reuse the precipitation that hits the roof. Similar to the siding of the walls, recyclable plastic bottles will make up the top of the roof. These will be nailed to the frame.

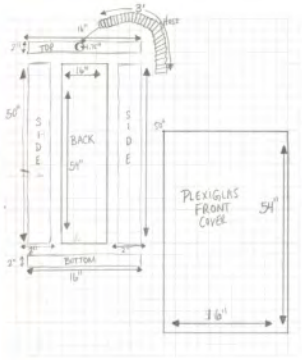
Inside the Greenhouse: Inside the greenhouses will be sets of 2' shelving on each wall with the exception of the wall with the door. Here is where the plants will have a home to grow even when the weather outside is too cold for normal growth.

Soda Can Solar Panels

A successful soda can solar panel will be able to trap the sun's solar energy and use it to generate heat for an enclosed space, possibly a greenhouse or shed. This project demonstrates to the school community the importance and impact of renewable sources of energy.

In order to obtain the aluminum cans for the project, students in Mr. Salvatorelli's Living Environment and Biology and Society classes collected cans from the cafeteria on specified pick-up days. After a sufficient amount of cans have been collected, they were painted black and cut into appropriate sections. The cans were glued and stacked into rows, which were fit into a plywood box that the students helped to assemble. A vacuum hose and attachment were attached to disperse hot air that the panel generated into the room. This completed box was sealed with Plexiglas® and angled toward the sun against a frame of PVC pipes. A full set of detailed instructions can be found on this web site: http://blog.hemmings.com/index.php/2007/04/26/almost-free-garage-heat-just-drink-a-lot-of-soda/. According to the web site, the price of materials for one solar panel should not exceed fifty dollars.

Aluminum soda cans for solar panel: construction and painting for efficient heat absorption



Schematic of the recycled soda can solar panel

Solar panel with Plexiglas®

Food Waste

Continuing with last year's tradition, we are continuing with recycling of food waste through traditional composting and the Bokashi method of composting. To date, we have recycled 698 pounds of food waste that will be used as compost for our garden.

Composting and Bokashi method; fermentation compost buckets; digging compost trenches; turning

Before and after
Prior to the school-wide project, only cardboard boxes were recycled by our custodial staff. All other paper from classroom and offices were thrown into the trash. We have created awareness throughout the building whereby all students and staff recycle within their offices, classrooms and the library.
Plastic bottles and aluminum were recycled by custodial staff during previous years. We have now taken those items and shown students how they can be put to good use within our community. The recycled food waste is a continuation of last year's Golden Apple Award winning project. After proper preparation, that waste will be put into our garden for soil enrichment. Waste is collected from the student cafeteria as well as teacher and staff lounges and dining areas.

Project planning
This is our third year in participating in the Golden Apple contest. Each year, we try to examine our community and implement innovative and novel practices related to recycling. Teachers participating in the project created proposals that are approved by our administration. Prior to the proposals, teachers collaborate and share ideas on ways to make Cardinal Spellman High School a greener community.

Student involvement
The 4G Club (Go Green Garden Group) was created this year not only to work with the compost and gardening, but to help with our new recycling efforts. Students weigh paper and log onto an Excel sheet on Google Drive to have current updates of how much paper is collected. A student from the Studio Art class is creating a banner that will be displayed at the front entrance with cardboard tree cutouts. Every tree represents 805 pounds of paper that has been recycled.

Our banner: "Save One Tree at a Time"
All students were encouraged by teachers and staff to throw any paper in the receptacles in each classroom. Biology classes took paper that was to be recycled and performed the recycling techniques to create recycled paper. Freshmen honor classes are creating products from anything recyclable (e.g., bags, piggy banks, candle holders, lamps, brooms, cell phone holder). These products were showcased at this year's annual fine arts exhibit in the school's Little Theater.

Recycled products on display at Fine Arts Exhibit. *Bags, piggy banks, candle holders; a lamp from recycled utensils, a broom from recycled plastic bottles, bird feeders, a clock, bracelets; lotion bottle turned into a cell phone holder and a decorative mosaic from old compact discs.*

Senior classes worked on collecting bottles for greenhouse construction and aluminum cans for the solar panels. We will also put rainwater barrels that will be attached to rain gutters on our newly purchased shed to use for watering plants in our gardens. The Community Art Club will also be painting a mural on our shed for aesthetic beauty.

Rain gutters on our shed, which will be decorated with a mural by the Community Art Club

Promotion

Weekly announcements on the PA system of the school are made for teachers to place the recycle bins outside classrooms for collection. Instagram is used to document all recycling efforts (Instagram accounts: @4gclub, @labmania). Email notifications are sent to all staff to explain and update them on our ongoing project. The school newspaper reported on recycling efforts throughout the school. Weekly journals as well as special project journals are posted on our school website (www.cardinalspellman.org). Continuing with Spellman's tradition with the Golden Apple, in the Science corridor on the first floor, there will be a showcase with pictures and description of all components of our project.

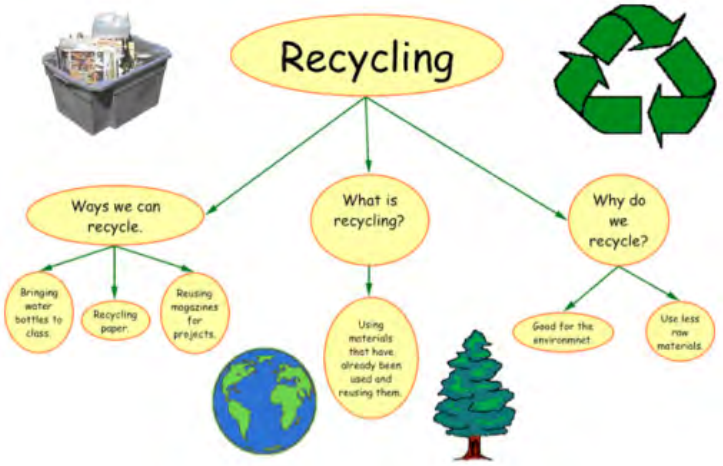
Collaboration

- We registered with the NYC WasteMatch program through the Department of Sanitation. As current members, we reduce the amount of disposable waste by giving others the opportunity to reuse our unwanted materials.
- The Cardinal Spellman High School Alumni Office uses recycled paper for their periodicals that are sent out to thousands of alumni.
- In support of our efforts on waste management, the staff no longer uses Styrofoam cups, which were in use during prior years.
- The Spellman maintenance staff has been an integral part with construction and supplies.

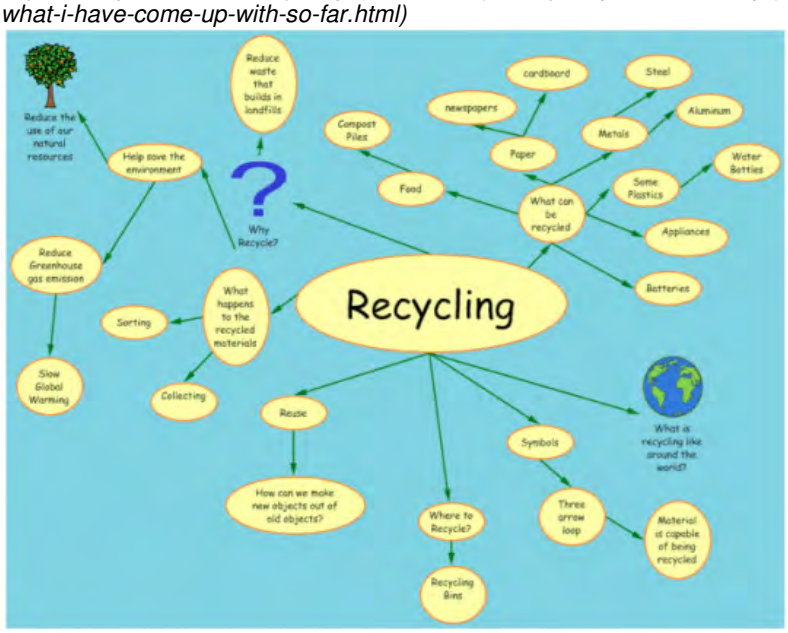
Educational components

- *Standard 1:* Students will use mathematical analysis, scientific inquiry, and engineering design as appropriate, to pose questions, seek answers, and develop solutions.
- *Standard 2:* Students will access, generate, process, and transfer information using appropriate technologies.
- *Standard 4:* Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.
- *Standard 5:* Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.
- *Standard 6:* Students will understand the relationships and common themes that connect mathematics, science, and technology and apply the themes to these and other areas of learning.
- *Standard 7:* Students will apply the knowledge and thinking skills of mathematics, science, and technology to address real-life problems and make informed decisions.

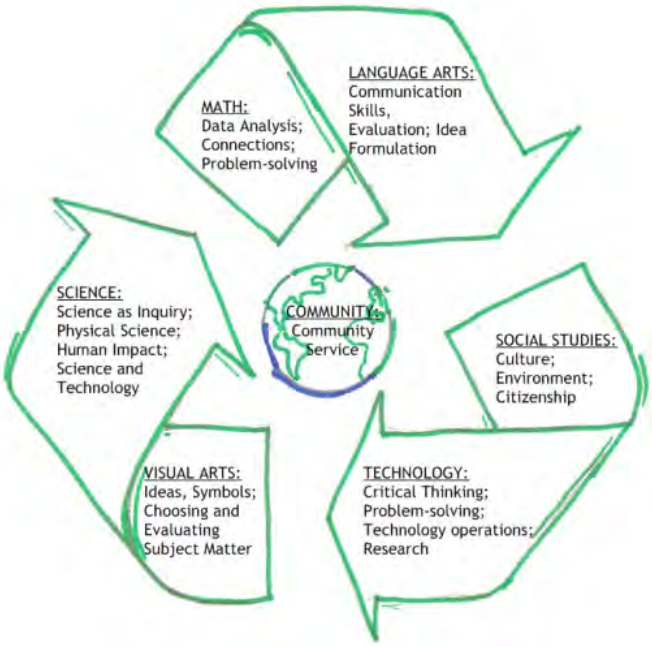
- *Concept Map 1* defines recycling, shows ways we can recycle, and reasons for recycling. *(Source: Rachel Weidman, http://recycling2edt3470.blogspot.com/2011/05/this-is-what-i-have-come-up-with-so-far.html)*



- *Concept Map 2* shows a detailed illustration of various materials that can be recycled and answers important questions on recycling. *(Source: http://recycling2edt3470.blogspot.com/2011/05/this-is-what-i-have-come-up-with-so-far.html)*



- Furthermore, students have learned the value of recycling. Students have also written journals detailing recycling practices in their home environment.
- Students read articles and videos on the recycling process.



This community recycling effort engaged all disciplines as depicted in the concept map above.

Paper recycling lab

The Science of Paper Recycling Lab

Screening Experiment to Determine Yield of a Recycling Process:

Objective: Be able to perform screening of recycled paper fiber and calculate the yield of the process. Background: One of the most important aspects of paper recycling is the fiber yield from the process. The fiber yield is defined as the % of the solids in the incoming wastepaper that are in the accepts of the recycled pulp. For instance, if 100 tons per day of solid wastepaper entered a process and 75 tons per day of recovered fiber solids were produced, the yield of the process would be 75%. The yield depends on the wastepaper furnish, the types of operations in the recycling process (e.g., screening, washing, flotation,etc.,) and the conditions under which those recycling sub-operations are run. In particular, removal efficiencies of contaminants are typically higher if the yield of the sub-operation is decreased by rejecting more material. The reject streams of all sub-operations typically has a substantial amount of fiber as well as contaminants in them.

Screening is a typical sub-operation in which the yield is always less than 100%. In screening, openings in baskets allow good fiber to go to the Accepts side but block large contaminants. The industrial screening operation can be simulated in the lab by simply screening a dilute pulp stream with a simple colander with openings of about 1-2 mm (typically used to wash foods). In this lab, paper will be pulped, screened and then made into a hand sheet. Solid material can be lost in the screening operation and also in the making of

a hand sheet (in which small particles are "washed" through the paper machine wire). By weighing the paper before processing and the generated pulp after, a process yield can be determined.

Materials:
Various paper, Blender, Triple Beam Balance, paper screen, sponge and pan

Vocabulary: recycling, yield, pulp, dilution
Procedure:

1. Obtain 1-5 various sheets of paper.
2. Weigh the paper and document the weight in grams. This is the air-dry weight of the paper. (All paper picks up some moisture from the atmosphere.)
3. Tear the paper into about 2 inch squares and put the squares into a blender cup with 1000 ml of hot water.
4. Cover the blender and blend for *30 seconds*. There may be lumps in the blender contents that can be parts of an envelope or adhesive particles or unpulped fiber bundles, this is ok.
5. Have about 3000 ml of clean dilution water ready.
6. Carefully and slowly pour the blender contents into the pan.
7. Next pour the 3000 ml of water into the blender and then pour the entire contents into the tub.
8. Next immerse the wire sheet in the tub and Scrape the contents of the tub with the screen to pick up the pulp. Complete these 3 times.
9. Finally take out the wire sheet and place on the towel on the table to dry.
10. The residual material in the tub is the REJECTS for screening.
11. Next pour the pan and its contents into the colander strainer placed in the sink.
12. Scrape the rejects from the strainer and place on the paper towel marked Rejects
13. Finally pat dry the recycled paper on a towel and leave to dry on the table
14. Once the recycled paper is dry then weigh the paper alone, recording the weight. This is the overall dry weight of the recycled paper.
15. Next Weigh the Rejects and document the weight.

Data Table

Trial	**Initial Weight of Paper**	**Recycled Paper weight**	**Grams Lost**	**% Yield**
1				
2				
Average				

Questions:

1. Calculate the yield
2. Can you calculate the grams of rejects for the overall process using the data provided?
3. What is the consistency of the data collected above?__
4. What do you think the effect of pulping time might have on the yield?
5. How might the type of wastepaper affect the yield for this process?
6. Does this weight explain all of the yield losses? If it doesn't, then what part of the yield loss is from the screening operation and what part is from the handsheet making process?
7. Do you believe the yield of this process for other types of wastepaper including corrugated box material, newspaper, magazine, copy paper, etc. would be different? Can you explain why the yields are higher or lower for the different wastepaper grades.

Recycling Assignments
These assignments used data on the spreadsheets that were posted on Google Drive. Math and Science joined together to create these lessons based on common data.

Biology Recycling Project

Create a Data Table and Line graph on graph paper using the data given from the recycling project and complete the questions on the
bottom.

1. What are the Independent and Dependent Variables?

2. What are your predictions for next week's recycling numbers? Explain why
3. What variables may affect the amount of paper recycled at Cardinal Spellman?

Math Assignment

Data Table

Start of Collection	Pickup Date	1st Floor	2nd Floor	3rd Floor	Total lb Paper	NOTES
9/4/2013	10/15/2013	231.7	26.1	104	361.7	Data was collected for first 6 weeks

Data was collected for first 6 weeks
Additional information can be found at:
http://science.howstuffworks.com/environmental/green-science/question16.htm
Answer all questions. Round answers to the nearest whole number or percent. SHOW ALL WORK.
1. If a tree yields about 805 pounds of paper, what percentage of a tree has been recycled from the first collection?
2. What percentage of the total paper collected did each floor recycle?
3. How many ounces of paper were recycled per week?
4. Based on the current data, what predictions can you make about next week's collection?
5. If you estimated that the total pounds of paper recycled was 325 lbs, what was the percent error of your estimation?

Biology Assignment

Read the three attached articles related to Recycling. You are to type a response to each article following the guidelines provided:

Article 1: Blazing A Paper Trail in China; A self-made billionaire wrote her ticket on recycled cardboard.

- List of Vocabulary words accompanied with definitions that you needed to research in order to understand the article.
- A short summary about the article.
- A Reaction to the article. Ask yourself the following questions, which will help you write your reaction. How did Ms. Zhang get to the position she is in today? What is the size of her company, staff etc? Did you know that paper recycling could be this profitable? How does she stay in front of the competition?

Article 2: California: Plastic Bags on Way Out

- A Reaction to the article. Ask yourself the following questions, which will help you write your reaction. If this ordinance was to approve this ban how would it directly affect the customers, the stores and the companies that sell plastic bags? What are your views on this Ban? Do you agree or disagree and why?

Article 3: Through the Mill

- What new information did you learn from this article after watching the videos? Do you think the amount of paper being recovered for recycling will continue to increase, explain why?

Biology Assignment

Watch 2+ of the videos on The Paper recycling process on YouTube and explain how paper is recycled. Be sure to include the stages paper goes through, how it is cleaned of ink and how the paper is repackaged and shipped. Also include any other useful information like the speed of paper recycling the weight, why paper is shredded, how many times paper is shredded, etc.
"Following the paper trail - Paper Recycling:" http://www.youtube.com/watch?v=ohv9y8Bi3fU
"How Do They Recycle Paper?" http://www.youtube.com/watch?v=isEV-mCFPiY
"Recycled Paper: "How Do They Make that Stuff?"" http://www.youtube.com/watch?v=5gWv_bkq7UI
"Video 2 Paper Recycling Process:" http://www.youtube.com/watch?v=jODl07akVHM

Soda Can Solar Panel Instructions and Blueprint

Materials:
(4) 2 x 4 studs (96 “)
(1) 4 x 8 plywood board
(1) 4 x 8 Plexiglas® sheet
(8) wood screws
16 wood nails
hammer
wood glue
caulk
caulk gun
can opener
(50) soda cans
drill
spade bit (1 ¼ “)
hose for vacuum with 1 ¼ adapter
high heat barbecue spray paint
electrical tape
NOTE: Teacher should have ALL wood and Plexiglas® cut prior to lesson.
Measurements for Cuts:
(2) 2 x 4 studs should be cut to 50” long
(2) 2 x 4 studs should be cut to 16” long
(1) sheet of Plexiglas® should be cut to 54” long and 16” wide
(1) plywood board should be cut to 54” long and 16” wide
Instructions (use blueprint provided):

1) Screw the two side 2x4s into the top 2x4 using 2 wood screws for each side (use wood glue as needed to fill in any gaps)
2) Screw the bottom 2x4 into the two side 2x4s using 2 wood screws for each side (use wood glue as needed to fill in any gaps)
3) Using the 1 ¼ spade bit, drill a hole directly into the middle of the top 2x4
4) Place the adapter onto the house
5) Place the adapter for the hose into the drilled hole; fill in any spaces with caulk
6) Place the plywood board onto the constructed frame so that it forms a support for the panel
7) Hammer 5 nails through the left side of the plywood board into the left side of the frame
8) Hammer 5 nails through the right side of the plywood board into the right side of the frame
9) Hammer 3 nails through the top of the plywood board into the top of the frame
10) Hammer 3 nails through the bottom of the plywood board into the bottom of the frame
11) With a can opener, take the tops off of 50 soda cans
12) With the drill, drill holes into the side of 5 soda cans
13) With the drill, drill a hole through the bottom of the remaining 45 soda cans
14) Caulk the bottom of the 5 soda cans with the holes in the sides and place them in a row on the bottom 2x4 so that the holes are facing you
15) Caulk the bottom of a soda can and place the caulked bottom into the top of a soda can that has been caulked to the bottom 2x4 (NOTE: add caulk to the portion of the can that will be against the plywood board for extra support)
16) Repeat this process for the remaining cans; by the end of construction, there should be 5 rows of cans stacked with 10 cans in each column
17) After the caulk has dried and the cans are stuck in place, paint the cans using the black barbecue spray paint
18) After the paint has dried, cover the soda cans and the frame with the Plexiglas® using caulk and tape, if necessary

Biology Project with student-generated products with instructions and sketch

Homemade Recycled Camping Lantern*

RUBI LANDESTOY

HOMEMADE RECYCLED CAMPING LANTERN

PURPOSE: LANTERN CAN BE USED FOR CAMPING OR POWER OUTAGES

MATERIALS:

* 1 TIN CAN
* PAINT AND PAINT BRUSHES (OPTIONAL)
* 1 GLASS JAR
* CANDLE
* 1 NAIL
* WIRES OR WIRE CLOTHES HANGER
* 1 NAIL
* ROCKS
* PLIERS
* WIRE CUTTERS
* LIGHTER

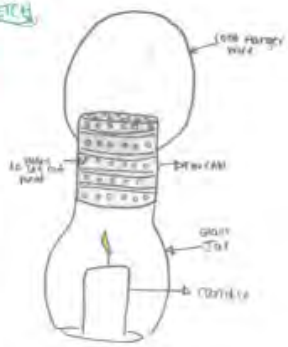
*** MAKE SURE YOUR CAN FITS PERFECTLY ON YOUR JAR ALSO MAKE SURE WHEN U PUT ON THE CAN IT IT HAS A REALLY TIGHT HOLD TO THE MOUTH OF THE JAR ***

STEPS:

1. WASH YOUR RECYCLED JAR AND TIN CAN PEEL AND REMOVE LABELS
2. TAKE YOUR TIN CAN AND WITH THE NAIL MAKE TWO HOLES ON THE TOP SIDES ON EACH SIDE. USE A SOLID OBJECT TO HAMMER THE NAILS INTO THE CAN OR YOU CAN USE A HAMMER.
3. TAKE YOUR NAIL AND MAKE MULTIPLE HOLES AROUND YOUR CAN AND TOP OR UPE AN INCH FROM THE BOTTOM OF THE CAN. AND ON THE TOP MAKE MULTIPLE HOLES AS WELL TO LET THE HEAT OUT AND BIG ENOUGH TO BLOW THE CANDLE OUT WHEN YOUR DONE USING IT.
   *** CAUTION: TAKE PRECAUTION HAMMERING HOLES***
4. OPTIONAL STEP: DECORATE YOUR CAN MAKE SURE THE HOLES ARE NOT COVERED WITH PAINT. USE ACRYLIC PAINT FOR BETTER RESULTS.
5. TAKE YOUR WIRED COAT HANGER AND CUT IT TILL IT'S ABOUT 12-15 INCHES LONG WITH YOUR WIRE CUTTERS OR AS LONG AS YOU WANT DEPENDING ON THE SIZE OF YOUR LANTERN.
6. TAKE ONE OF THE ENDS OF YOUR COAT HANGER AND STRING IT THROUGH BOTH HOLES YOU MADE ON THE TOP SIDES.
7. BEND THE REST OF THE WIRE INTO AN OVAL SHAPE FOR THE HANDLE
8. USING THE PLIERS MAKE A SMALL CIRCLE AT THE END OF ONE WIRE AND THEN MAKE SURE THE OTHER END IS FLIPPED THROUGH AND CLOSE THAT END OF THE WIRE AS WELL SO IT'S LIKE TWO CIRCLES ATTACHED
9. PUT THE CANDLE INSIDE AND USE A LIGHTER OR MATCHES TO LIGHT IT.
   *** ADULT NEEDED***
10. PUT THE CAN ONTO THE JAR AND MAKE SURE THE CAN AND JAR HAVE A TIGHT FIT TO THE JAR SO PEOPLE FALL OFF AND BREAK.
    *** TO BLOW OUT THE CANDLE BLOW THEM OUT THROUGH THE HOLES MADE ON THE TOP OF THE CAN***

    ***** TWO COAT HANGERS OF AN ADULT WANTED THE WIRE THE WIRE A LITTLE BIT SINCE USED IT MAKE THEIR LANTERN'S OUT OF SHARP POINTED SCISSORS, PLIERS AND TRADING TIN CANS BECAUSE WHEN SHE USED IN THE DOMINICAN REPUBLIC THERE WERE MANY POWER OUTAGES *****

SKETCH



Vintage Centerpiece*

Vintage Centerpiece

Purpose: Home Decor

Materials:

- Freshly cut flowers
- Glass jar
- Burlap sack
- Ribbon
- Scissors
- Hot glue gun

HOW TO:

1. Unscrew lid of jar and remove the center.
   - Some lids may need a circular hole cut in the center leaving a ½ in. rim.
2. Cut a strip of burlap from a rice or potato sack.
   - The strip should be thick enough to cover the entire middle section of the jar and 1 in. longer than the jars circumference.
3. Glue the burlap strip horizontally around the jar.
   - One end should be 1# glued to the jar itself. The other end should be glued on top of the first end for security.
4. Wrap a 1 in. thick piece of ribbon around burlap.
   - Ribbon should be centered on top of the strip.
   - Both ends should be glued down.
5. Place flowers in jar through opening.
6. Decorate!
   - Add bows or a bow onto ribbon for a vintage look!

By: Megan Andujar

Source: Maryann Lopez

Recycled Juice Box Wallet*

Jillian Camara

Period 2

Juice: Milk Carton Wallet

Things You Need:

- Half Gallon (2 quarts or 64 fl. oz) juice or milk with a plastic cap
- Scissors
- Wallet Template
- Tape
- Ruler
- Ballpoint pen
- Butter knife or craft knife

Instructions:

Step 1: Print out a wallet template if you do not have one already. These can be found online

Step 2: Rinse out your carton and cut it so that it is completely flat.

Step 3: Dry the carton with paper towels or let it air dry.

Step 4: Cut along the outside lines of the template and cut the circle at the bottom of the template. Then, tape the sides together

Step 5: Place the template on the carton. Make sure the shaded grey circle is aligned with the carton opening. If you want, you can tape the template to the carton to keep it in place

Step 6: Using a ball point pen or a pencil, trace the outside lines and the bottom circle. Make sure to use pressure when tracing the dotted lines as well. This allows you to see the lines on the carton.

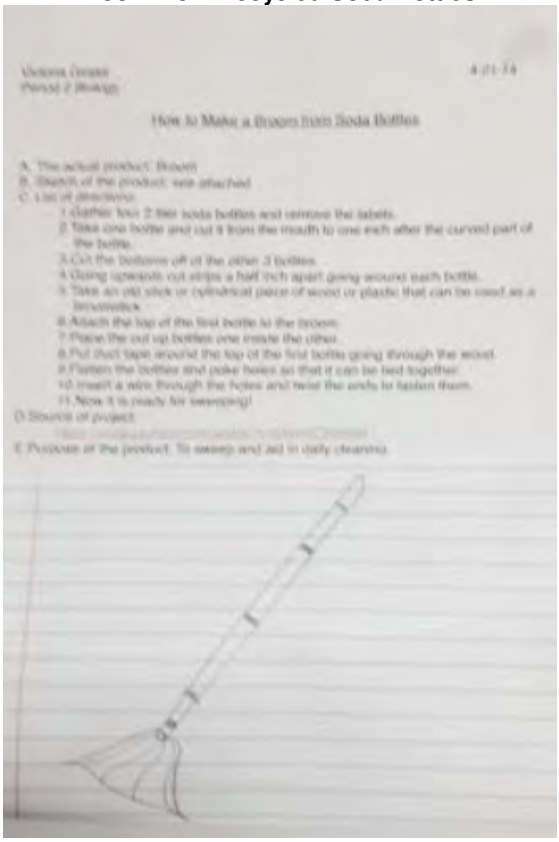
Step 7: Cut out the outside lining and the bottom circle

Step 8: Trace the dotted lines with a butter knife, craft knife, or scissors blade to score them

Step 9: Make an accordion out of the two half circles. You have to focused on the scored lines and avoid getting the cartons folds together. Re-score the lines if needed

Step 10: After the folding is done, it should look like a rectangle. Fold the top down and secure it with the plastic cap. Enjoy your crafty wallet!

Broom from Recycled Soda Bottles*



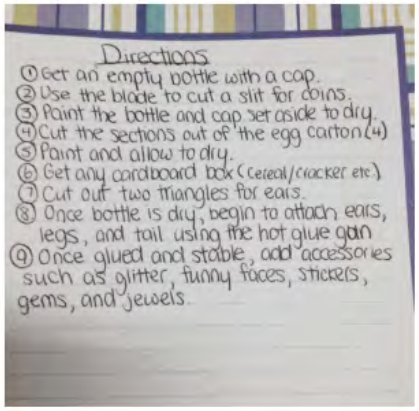
Victoria Grant
Period 2 Biology

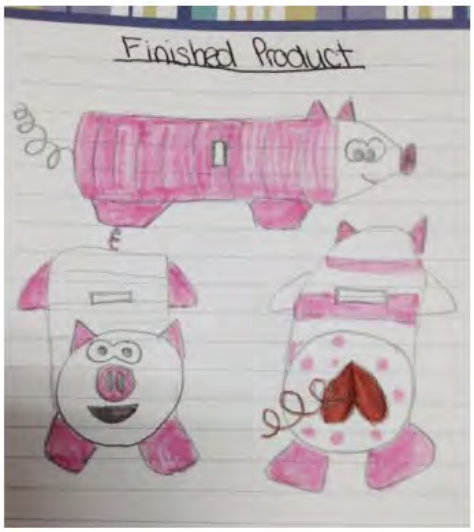
4-21-14

How to Make a Broom from Soda Bottles

A. The actual product: Broom
B. Sketch of the product: see attached
C. List of directions:
1. Gather four 2 liter soda bottles and remove the labels.
2. Take one bottle and cut it from the mouth to one inch after the curved part of the bottle.
3. Cut the bottoms off of the other 3 bottles.
4. Going upwards cut strips a half inch apart going around each bottle.
5. Take an old stick or cylindrical piece of wood or plastic that can be used as a broomstick.
6. Attach the top of the first bottle to the broom.
7. Place the cut up bottles one inside the other.
8. Put duct tape around the top of the first bottle going through the wood.
9. Flatten the bottles and poke holes so that it can be tied together.
10. Insert a wire through the holes and twist the ends to fasten them.
11. Now it is ready for sweeping!
D. Source of project:
[illegible]
E. Purpose of the product: To sweep and aid in daily cleaning.

Piggy Bank from Water Bottle and Egg Carton*





***For more information, ask to see our class catalog.**

PROJECT ANALYSIS

- **What worked?** We were able to get most of the school community on board. It is unbelievable how much paper is collected on weekly basis. This paper would otherwise be disposed of in landfills in previous years. Policy for collecting aluminum bottles and cans was in place from prior years in our cafeteria. Announcements during lunch time reminding students to recycle help them become more aware as to where to place their trash.
- **What didn't work?** With a population of 1,400 students and a faculty of 80, it is hard to manage all behaviors dealing with recycling. So there is always a person that doesn't take the task seriously, and we have found cans, bottles, and paper mixed together. We had to sort trash after collection. Due to the extreme weather this winter, the greenhouse construction and implementation is only now in progress. We should be in full swing by the end of the school year with our greenhouse and solar panels operating.
- **Applicability to other schools** We suggest that organization is a priority, and collaboration with colleagues and students is a necessity. Public announcements in the school, emails, social networking like Instagram helps everyone get on board with such a school-wide project.
- **Measuring success** Using Google Drive, we were able to have a central location to post current data and assignments pertaining to recycling and all parts of the project. This enabled us to stay on task and keep our weekly procedures constant. We were consistent in weighing, bagging, and making sure paper was properly put in the blue bins for the weekly Friday pickup. It is impressive to have a greenhouse and solar panels made from recycled material on school grounds. This is a visual for the entire community to see how their recycling efforts were put to good use. The greenhouse will be an integral component for our school garden. We will be able to use it year-round, and we are going to try to grow certain vegetables throughout the year.

Future plans We are very fortunate at Spellman that our Golden Apple award money have been used in the past for our composting efforts. We have been able to buy composting equipment, paving stones, woodchopper, shovels and other gardening tools. We would like to use the money to purchase recycled stationery for our school letterhead. We would also like to purchase benches and tables from recycled material for our reflective (the courtyard and gardens) and work spaces. We would like to purchase blue bins for paper recycling to be used in classrooms. We would like to continue with our compost project and our garden which can be an expense. Since we are in an urban setting, we would like to continue and enhance not only our land gardens, but also expand our vertical farming. In the future, we would like to institute hydroponic technology into our garden area. Just recently, we installed gutters on our shed, and we are collecting rainwater for watering our garden. At present, we only have one collecting barrel. We would like this to become a vast operation.